

NightTech

The Next Generation

Hunter Series

MS42R

Thermal Mini-Sight



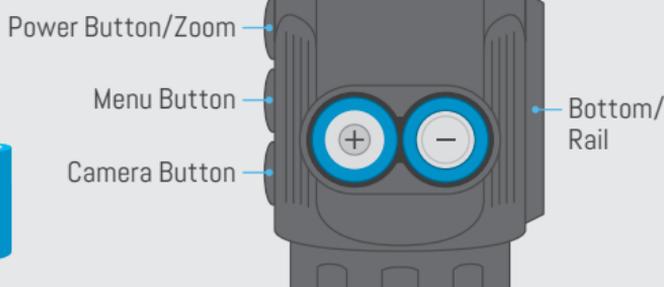
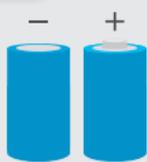
User Guide



Hunter Series **MS42R**



Figure
1



IMPORTANT INFORMATION ON SAFETY WARRANTY AND CORRECT USE

The MS-42R Thermal Mini-Sight must be used according to the instructions within this user guide. Damage caused to the device from misuse may void your warranty.

- Never point/aim the device at extremely hot objects including the sun or a laser, as this may cause irreparable damage to the device.
- Never insert batteries of different brands, voltages or capacities together in the device, as this may cause irreparable damage to the device.
- The MS-42R Thermal Mini-Sight features a 3 year warranty against manufacturing defects. The warranty excludes damage caused by misuse, abuse, improper handling/care or failure to follow the manufacturers instructions. This warranty is not transferable. If you have a problem or require assistance, contact your Night Tech dealer where you purchased this device.
- This device is designed for use in environments between -10°C and +50°C. Use outside of these temperatures and viewing objects outside this range may cause damage to the device.
- Ensure the charging port is covered when not in use, particularly in moist environments and weather, to prevent moisture from entering the unit.
- This device is subject to export and import restrictions in most countries and is not to be imported or exported from the country of official purchase without approval from the relevant authorities and Night Tech.

BATTERY SELECTION

The Battery Models switch function can be set in the Advanced Menu.

3V is typically for non-rechargeable batteries

3.7V is typically for rechargeable batteries e.g. 16340 or RCR123A

Voltage will be displayed on the side of the battery

Installation of incorrect batteries or incorrect battery selection in the Advanced Menu may cause the battery status indicator to display incorrect information or may cause the device to either switch off after a short period of time or excessively drain the batteries. This may cause irreparable damage to the batteries and device, voiding the warranty.

BATTERY INSTALLATION

Open the battery bay cover anti-clockwise and insert two batteries as shown (one with the positive pole upwards and the other with the positive pole downwards). See Figure 1 (left).

After the batteries are inserted, push the cap down firmly with 2 fingers with even pressure both sides. You will hear 2 clicks when done correctly and the O-ring seal on the cap will not be visible.

Always remove batteries from the unit after use as they may discharge in the device or cause damage to the device. Never attempt to recharge batteries in the unit. Batteries are not included.

EXTERNAL POWER

This device supports external power via a Type-C USB cable. The USB icon will be displayed on the screen after connecting to an external power source. Remove batteries when powering by external power and always disconnect external power when not in use.

BASIC OPERATION

POWER ON/OFF

To turn the unit on, long press the Power Button for 3 seconds. Once you have released the Power Button, wait another 6 seconds for the thermal image to appear. To turn the unit off, long press the Power Button for 3 seconds then release and a tick and cross icon will appear. Select the tick with either the Power or Camera Button and then push the Menu Button to confirm the shutdown process. Complete shutdown takes a few seconds.

DIOPTER ADJUSTMENT

Once the unit is switched on, rotate the Eyepiece Focus Ring to get a clear image of the reticle or menu on the screen. This is best done with the lens cap on.

OBJECTIVE FOCUS

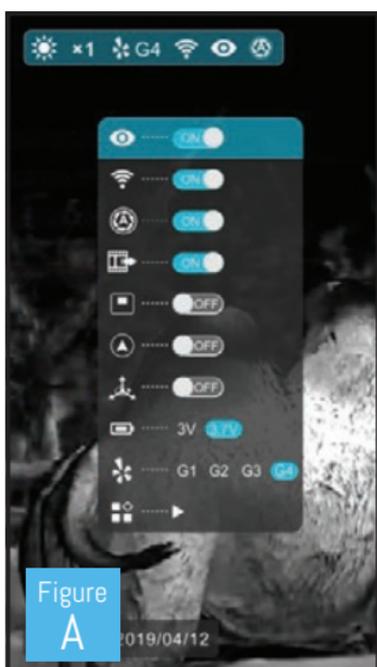
Once the diopter is adjusted, open the lens cap and rotate the Focus Ring to get a clear image of items in the distance. Ensure the lens cap is off, lens is clean and your fingers are not on or near the lens as the heat signature will affect the image and focus.

CALIBRATION

To maintain the highest image quality, the thermal image will need to be calibrated periodically. When the unit is calibrating, the image will freeze momentarily and a clicking can be heard.

There are 3 types of thermal calibrations:

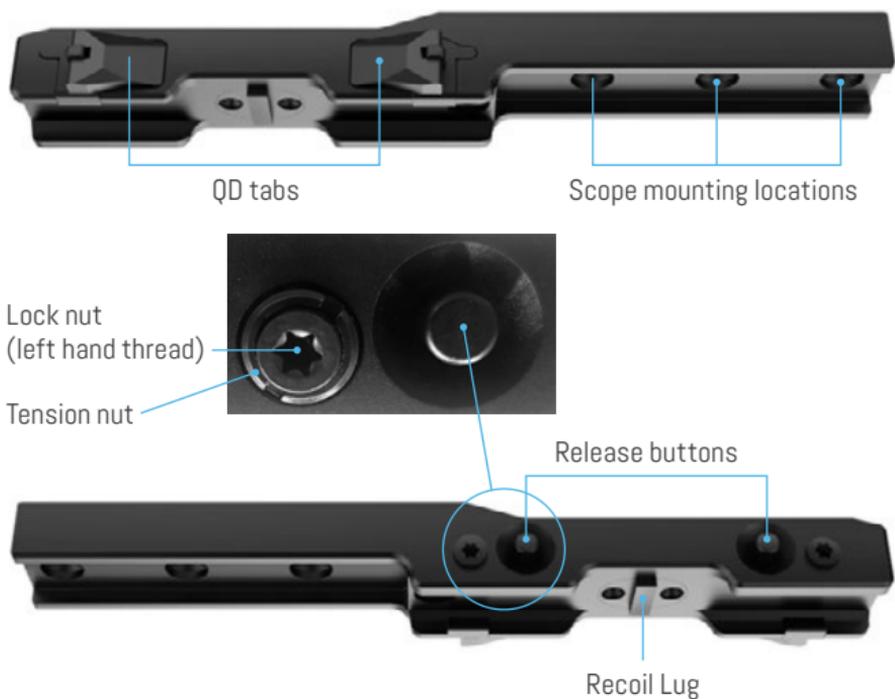
1. Automatic calibration can be selected in the Advanced Menu under Auto Shutter Correction. Before each calibration, the unit will show the countdown in seconds in the top left. To cancel this calibration, short press the power button.
2. Semi Automatic calibration can be performed by short pressing both the Menu and Camera Buttons together.
3. Manual calibration can be performed by long pressing both the Menu and Camera Buttons. The lens cap must be on otherwise ghosting on the screen will occur. If ghosting occurs, repeat the process with the lens cap on.



RETICLE DISPLAY ON/OFF

To activate the Reticle for the first time, press and hold the Power and the Camera buttons simultaneously for 5 seconds, then click the Menu Button 4 times. After that, to hide or display the reticle you need to press and hold the Power Button + Menu Button + Camera Button for 5 seconds. The reticle will appear after you release the buttons. If doing this does not work, repeat the Reticle Display On/Off process in the reverse order, as it can take a few times for it to appear.

When the Reticle is not displayed, all Reticle menu items will be hidden (Reticle Colour, Reticle Type, Firearms Type, Zeroing etc). This Feature is useful when using the device as a monocular.



MOUNTING THE MINI-SIGHT TO A RIFLE

In order to mount the Mini-Sight, you will require a 1 piece 0 MOA Picatinny Rail.

The Mini-Sight can be mounted in 3 locations along the rail. Based on your stock and the eye relief required, determine the best position.

Attach the QD Rail to the Mini-Sight using the hex screws provided. You will require a hex/Allen key (not included) for installation. For improved stability, you can also apply low-strength Loctite or similar (not included).

MOUNTING THE MINI-SIGHT AND QD RAIL TO THE PICATINNY RAIL ON YOUR RIFLE

1. Push the 2 release buttons on the QD Rail, then lift the QD tabs out to the fully open position. (If too tight, follow the instructions below to loosen).
2. Place the QD Rail and Mini-Sight on the Picatinny Rail at the desired position based on the eye relief required (ensure the recoil lug is located in a groove). Then push the Mini-Sight forward until the recoil lug stops it from moving any further.
3. Close the QD Rail tabs to the fully closed position. The tabs should close tightly and be difficult to open without the use of the release button.
4. If the QD Rail tabs are not tight enough, adjust the bolts next to the release buttons to the desired tension using the supplied tool. To do this, loosen the lock nut (hex head) by turning it clockwise 1-2 turns (left hand thread) with the hex end of the tool. Then, using the 2 flat edges of the tool, adjust the tension nut (has 2 slots and lock nut is in the middle) to the desired tightness for the rail and QD tabs. The tabs should be tight but not immovable. Then tighten the lock nut using the tool turning it anti-clockwise (left hand thread).

IMPORTANT NOTE

The lock nut for the QD tab tensioner is a left hand thread. To loosen, turn clockwise. To tighten, turn anti-clockwise. For permanent installations where the QD Rail is not to be used, install the tension and lock nut tighter than normal.

ADVANCED MENU

Press and hold the Menu button to display or close the Advanced Menu (See Figure A, bottom of left page).

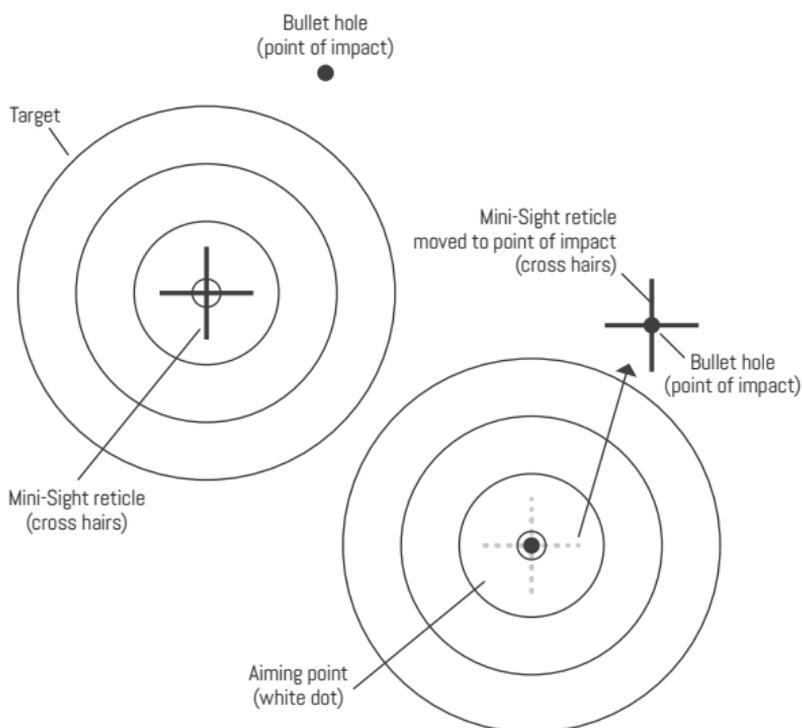
Navigate through the menu by pressing the Power or Camera buttons to either move up or down. Once a function is selected, press the Menu button to either switch that function on or off or to adjust its values.

-  **ULTRACLEAR MODE** for viewing clearer images in heavy rain, fog or snow. Should not be used in good conditions as it may degrade the image.
-  **Wi-Fi** the default password is 12345678
-  **AUTO SHUTTER CORRECTION**
-  **VIDEO OUT** via cable from USB port to external screen or recording device
-  **PICTURE IN PICTURE** on/off
-  **DIGITAL COMPASS** on/off (not to be used for navigation)
-  **MSENSOR** displays the horizontal and vertical tilt angles of the sight
-  **BATTERY TYPE** 3V non-rechargeable or 3.7V rechargeable
-  **ZEROING TYPE** allows you to have multiple zeros saved for different weapons, calibers, distances or ballistics.
-  **IMAGE HUE** C = Cool, W = Warm
-  **MORE** features include Zeroing, Defective Pixels Calibration, Compass Calibration, System Information, Factory Settings

MORE MENU

-  **ZEROING** for sight adjustment
-  **DEFECTIVE PIXELS CALIBRATION** for bad pixel adjustments
-  **COMPASS CALIBRATION** for compass adjustments
-  **DATE AND TIME** for setting the and date and time
-  **SYSTEM INFORMATION**
-  **RESET TO DEFAULT**
-  **RETURN** to go back to the previous menu





ZEROING

Enter the Zeroing Menu and zero as below, then aim and shoot at a target starting at 25 metres/yards, re-checking at 50 metres/yards, then at 100 metres/yards or more. Observe the location of the bullet hole (see image above).

- To zero, move the cross hairs on the screen from the center of the target to the bullet hole (point of impact) using the Camera or Power Button while leaving the dot on the center of the target (aiming point), see image above. To change the axis from up/down to left/right, short push the Menu Button.
- To make larger up/down or left/right adjustments, hold the Camera or Power Button for 3 seconds to move the cross hairs in larger increments.
- Once you have completed the zeroing, hold the Menu Button for 3 seconds to save and exit the Zeroing Menu. Hold the Menu Button for 3 seconds again to exit the menu, and go to the main screen ready to shoot.

HANDY ZEROING HINTS AND TIPS

- Good thermal targets include metal thermal tape/insulation tape, pocket warmers (when cold), black tape (sunny days) on a cardboard or paper background.
- Use a steady, unmovable rest, aim at the center of the target and shoot. Then position the cross hairs on the center of the target, lock the rifle into the rest and move the cross hairs from the center/aiming point to the point of impact (bullet hole) leaving the dot on the aiming point.
- Always re-check the point of aim prior to using the scope.
- If the bullet hole (point of impact) is not visible on the target, return to 25m/yards distance and re-sight in again from that distance. You may need to return the zero to the center with coordinates 0/0.
- Always start on base magnification at 25 metres/yards. To fine tune the zero calibration of the sight for greater accuracy and distance, use a higher zoom magnification setting.

Always zero at a temperature close to the temperate you intend to shoot at.

Long pressing the Menu and Camera Buttons together will freeze and un-freeze the screen making it easier to adjust the sight.



DEFECTIVE PIXEL CALIBRATING

See Figure C, above: In the Advanced Menu, select the Defective Pixel Calibrating Menu.

Press the Power Button + Camera Button to move the Reticle in up/down/left/right directions. Press the Menu Key to switch between up/down/left/right directions.

After selecting Blind Pixel, long press the Power Button + Camera Button for 3 seconds to calibrate the Defective Pixel. In order to cancel the calibration, simply long press the Power Button + Camera Button.

Long press the Menu Key to exit the Defective Pixel Calibrating Menu.

FACTORY RESET

To delete and reset all settings to the factory default, select this option and then select the tick for yes to confirm or the cross to cancel. This option should only be used if there is a problem with the unit.

BE ADVISED: Factory Reset will delete all sight in, zero and weapon settings.





COMPASS CALIBRATION

See Figure D, above: Scroll the Advanced Menu with the Power or Camera buttons to find Compass Calibration and then select it by short pressing the Menu button (See Figure C, above).

Simply rotate the device in three axial directions within 30 seconds to complete the calibration.

TAKING PHOTOS AND VIDEO RECORDING

To take a photo, simply short press the Camera button. The image will freeze for half a second and a camera icon will appear in the upper right of the screen.

To record video, simply long press the Camera button. The recording time is indicated in the upper right corner of the screen.

Long press the Camera button to end the video recording.

Note: The video will not be saved if you skip the process and shut down the device or the battery goes flat.

Photos and videos can be downloaded on your computer via the supplied USB-C cable. To connect, turn on the device, then connect it to your computer with the cable (it should ask you if you want to open the files), alternately, go into your File Explorer and access the device.

This device is designed primarily for PC use and may not work on other unsupported devices and operating systems.

STADIAMETRIC RANGEFINDER

See Figure E, bottom of right page: Press and hold the Power and Menu buttons to enter into the stadiametric ranging interface. Two horizontal lines will appear, one above the cursor and one below. (See Figure D, bottom of right page).

Adjust the horizontal lines to the target position by pressing the Power or Camera buttons. The icon on the left shows the approximate distance of the corresponding target.

Press and hold the Menu button to exit to the stadiametric ranging interface.



WI-FI

The Wi-Fi application allows remote-viewing of the on screen image.

ANDROID (recommended)

From Google Play, download and install the Night Tech XD App.

iOS/Apple (not officially supported)

From the App Store, download and install the after-market Cam802 App.

INSTRUCTIONS

1. Install the App (but do not open it yet).
2. Turn on the device, go to the Main Menu and enable Wi-Fi (the Wi-Fi symbol will be displayed in the top left corner of the screen).
3. Enable Wi-Fi on your phone/tablet by going to your Wi-Fi settings, then pair your device. The password is: 12345678 .
4. Open the App, it should auto connect. If it does not, press the button with the Wi-Fi symbol.

You can now live stream, record video and transfer files.

VERY IMPORTANT:

- If you get a notice regarding security or internet access from this device, click OK or dismiss it.
- When your phone/tablet is scanning for the device, allow 2-3 minutes for it to find the device.
- If your App fails to find your device, restart both your smartphone/tablet and your device and repeat the connection process.
- The Wi-Fi is only designed for use within 3-5 metres and not is not to be used for aiming or sighting.
- Depending on the speed of your device, interference and other nearby signals, there may be a slight delay in displaying the video image. This is caused by the time required to process, transmit, and reconstruct the image on your smartphone/tablet or App and is normal.
- This device is designed primarily for Android use, and may not work on some iOS devices.

NIGHT-TECH MS-42R MINI-SIGHT DEVICE SPECIFICATIONS

Resolution	384 x 288 pixels
Pixel size	12 μ m
NETD	\leq 35 mk
Frame rate	50 Hz
Objective lens	35 mm
Field of view	7.5° x 5.7°
Display	1024 x 768 OLED
Magnification	3–12 x
Battery type	CR123 x 2 note on warnings
Maximum operation time	4 hours
Wi-Fi and Recorder	Yes
Compass and Msensor	Yes
Weight without batteries	<420 grams
Dimensions	195 x 61 x 61 mm
Detective range Target size: 1.7m*0.5m, P(n)=99%	1,818 m
Built-in memory	32 GB
USB type	Type C



Stadiametric rangefinding is used for measuring distances.

SHORTCUT MENU OPTIONS AND DESCRIPTIONS

BUTTON	SHORTCUT MENU	OPERATION
<p>Press Menu Button 1 time</p>	<p>The first page of the shortcut menu adjusts Image Palette/Image Brightness</p> 	<p>Short press the Power Button to adjust Image Palette from white hot, black hot, red hot to color.</p> <p>Short press the Camera Button to adjust the screen Brightness level from 1 to 4 gradually enhanced.</p>
<p>Press Menu Button 2 times</p>	<p>The second page of the shortcut menu adjusts E Zoom/Image Sharpness</p> 	<p>Short press the Power Button to perform E Zoom (x1, x2, x3, x4). The device can also be zoomed by short pressing the Power Button on the main screen (shortcut).</p> <p>Short press the Camera Button to adjust the Image Sharpness level from 1 to 4.</p>



Press Menu Button 3 times	The third page of the shortcut menu adjusts Image Brightness/Contrast	Short press the Power Button to adjust the thermal Image Brightness level from 1 to 4. Short press the Camera Button to adjust the image contrast level from 1 to 4.
		

Press Menu Button 4 times	The fourth page of the shortcut menu adjusts Reticle Color and Reticle Pattern	Short press the Power Button to adjust Reticle Color (white, black, red, green). Short press the Camera Button to adjust the Reticle Pattern (8 patterns available).
		

Press Menu Button 5 times	Exit Shortcut Menu and return to the Home Screen
---------------------------	--



All functions can be accessed via the 3 main buttons located on top of the device.



POWER



MENU



CAMERA

SHORTCUT MENU CONTINUED

Press the Menu Key to access the Shortcut Menu to display settings for Image Mode, Image Sharpness, Digital Zoom, Display Brightness, Reticle Colour and Reticle Pattern.

Shortcut Menu: While on the main screen is outlined below

BUTTON	SHORT PRESS	LONG PRESS
Power button	E-Zoom	Power on/off
Menu button	Open the Shortcut Menu	Open the Advanced Menu
Camera Button	Take a photo	Record video
Menu and Camera buttons	Shutter correction	Background correction (with lens cap on)
Power and Menu buttons	Standby function on/off	Sadiametric Rangefinder function

TROUBLE SHOOTING MS-42R

Thanks for purchasing a Night Tech product. If you are experiencing any problems with your device please review the manual and the trouble shooting table below. If it is unable to solve your problem or you need more info, please contact your purchasing dealer and they will be happy to assist.

PROBLEM	SOLUTION
Unit won't turn on	Ensure battery cap is installed correctly, and batteries in correct way. Install new or freshly charged rechargeable batteries. Hold down power button longer, also see battery section
Low battery indicator or shuts off prematurely	Ensure correct voltage for batteries is selected in the advanced menu (see Battery Selection)
Best batteries to use	We recommend high quality rechargeable 3.7V batteries, reputable torch/flashlight manufactures make these, avoid cheap no-name or unknow brand batteries sold cheap online and those with larger than normal capacities as they can be a scam
Turns off after each shot	Be sure the battery cap is installed correctly, by pushing the cap down firmly with 2 fingers with even pressure both sides. You will hear 2 clicks when done correctly and the o-ring seal on the cap will not be visible
Zoom causes objects to become pixelated	The Zoom on this device is electronic and will cause pixilation as it zooms
Ghost image appears on the screen	Perform manual NUC long pressing for 3 seconds both the Menu and Camera Buttons. The lens cap must be on otherwise ghosting on the screen will occur
Unit won't hold zero	Check the unit is mounted as per instruction to the rail and nothing is loose. Ensure it has been correctly zeroed and settings saved. Turning off incorrectly, removing batteries or the unit going flat during zeroing will cause it not to save your settings. Ensure the correct Zeroing type/weapon is selected, changing this will alter zero. Ensure the unit has been zeroed at approximately the same distance, temperature, humidity, atmospheric pressure and elevation that you plan to use it at. Ensure you have re-checked zero prior to each use. Review the Zeroing instruction in this manual.
Parts are required	Please contact your purchasing dealer or local Night Tech Premium Stockist
External Screen or recording	This device will output video via the supplied USB to RCA cable, you will need an external screen or recorder with RCA input, these can be purchased online, we don't recommend any particular type
External power	External 5V USB power packs can be used to power the device via the USB C port on the device
Day use	This device can be used during the day however should never be pointed at extremely hot objects including the sun as it will damage it
Vehicle mounting	This device is not designed or approved for mounting on a vehicle
Image quality has degraded	Image quality varies greatly on thermal devices with environmental conditions such as heat, humidity, rain, fog and snow as these conditions will degrade the image quality. It is normal to notice a decrease in image quality in summer vs winter as the temperature variance between target objects and the surrounds will be less, resulting in diminished image quality and it being harder to detect objects/targets



visit www.night-tech.com